

Abstract

The surface of a phosphor is coated with a coating member made of a material different from the phosphor in chemical vapor-phase reaction. The coating member is made of any of metal oxide, metal nitride and metal oxynitride. The coating member coats the surface of the phosphor whereby having a substantially smooth film, or is formed such that a large number of fine particles relatively smaller than the phosphor aggregate to coat the whole surface of the phosphor. The coating member contains at least one metallic element selected from the group consisting of Al, Si, and rare earth elements. In addition, the phosphor is a transparent water-soluble phosphor and is an alkaline-earth silicon-nitride phosphor, an alkaline-earth silicon oxynitride phosphor, or the like. The BET value of the coated phosphor is 1.0 to 10 times the BET value before coating. The average thickness of the coating is 10 nm to 500 nm.